



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics  
**STATISTICS COLLOQUIUM**

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**Introduction to the  
Holonomic Gradient Method in Statistics**

**MONDAY, October 22, 2012, at 4:00 PM**

133 Eckhart Hall, 5734 S. University Avenue

*Refreshments following the seminar in Eckhart 110*

**ABSTRACT**

The holonomic gradient method introduced by Nakayama et al. (2011) presents a new methodology for evaluating normalizing constants of probability distributions and for obtaining the maximum likelihood estimate of a statistical model. The method utilizes partial differential equations satisfied by the normalizing constant and is based on the Grobner basis theory for the ring of differential operators. In this talk we give an introduction to this new methodology. The method has already proved to be useful for problems in directional statistics and in classical multivariate distribution theory involving hypergeometric functions of matrix arguments.

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